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EXAMINER

CHEN, TSE W

ART UNIT	PAPER NUMBER
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2116

DATE MAILED: 07/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/935,387

Applicant(s)

PLATENBERG ET AL.

Examiner

Tse Chen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/11/2002</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on February 11, 2002 was filed before the mailing date of the first Office Action. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Specification

2. Claims 2, 6, 7, and 19 are objected to because of the following informalities:
- As per claim 2, “node base the optical node” should be “node base *of* the optical node”.
 - As per claim 6, “block in the node base” should be “block in *a* node base” to avoid antecedent problem.
 - As per claim 7, DHCP should be specified in order to avoid potential confusion with other like acronyms.
 - As per claim 19, there is a missing “and” before the penultimate element of the claim and “storing” should be “store” in order to be grammatically consistent.
 - Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1-7, 12, 14-17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gods, U.S. Patent 6202091, in view of Palmer, U.S. Patent 6285481.

5. In re claim 1, Gods discloses a method of loading a system image onto a node [201] capable of routing communications data [col.5, ll.17-19, ll.36-41; booting involves loading system image], the method comprising:

- Retrieving system configuration parameters [col.6, ll.24-38; some configuration parameters in the broadest interpretation is inherently needed in order for the system to setup and operate accordingly] and boot parameters [col.5, ll.56-62; some boot parameters in the broadest interpretation such as the pointers to files are needed for boot initiation element 202 to boot accordingly].
- Loading the system [software] image [col.8, ll.27-55].
- Loading an alternate system image [remote or local] upon detecting any failures during loading the system image [col.8, l.61 -- col.9, l.8].
- Storing a boot string [status file] such that the system image can learn how it was loaded [col.7, ll.46-57; col.9, ll.55-59].

6. Gods did not discuss the specifics of the node.

7. Palmer discloses an optical node [transceiver A] capable of routing wireless communications data [col.2, ll.36-67; free space atmospheric laser].

8. It would have been obvious to one of ordinary skill in the art, having the teachings of Gods and Palmer before him at the time the invention was made, to use the wireless optical node taught by Palmer for the communication node disclosed by Gods as the wireless optical node' taught by Palmer is a known device suitable for use as the communication node of Gods. One of

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ordinary skill in the art would have been motivated to make such a combination as it provides a way to increase the reliability of data transmission [Palmer: col.1, 1.42 -- col.2, 1.20].

9. As to claim 2, Gods discloses performing a self-test [sanity check] and an initialization of a controller [CPU] located in a node base [inherently, nodes have bases in the broadest interpretation] of the optical node [col.5, 1.56 -- col.6, 1.6; col.6, 11.39-51].

10. As to claim 3, Gods discloses that the system image is retrieved over a network connection [fig.1; col.5, 11.36-39; col.6, 11.59-60].

11. As to claim 4, Gods discloses that the system image is retrieved over an auxiliary channel connection [ATM link] [col.5, 11.50-52, 11.62-64; col.6, 11.55-60].

12. As to claim 5, Gods discloses that the system image is retrieved from a local memory block [NVRAM 206] [col.8, 11.55-61].

13. As to claim 6, Gods discloses storing and retrieving the system configuration parameters and the boot parameters from a system configuration memory block [NVRAM 206] in a node base [201] [col.5, 1.46 -- col.6, 1.6; col.6, 11.39-51].

14. As to claim 7, Gods discloses retrieving and verifying the system configuration parameters and the boot parameters via a DHCP request over a network connection [ATM link] [col.7, 11.12-18].

15. In re claim 12, Gods and Palmer discloses every limitation of the claim as discussed above in reference to claim 1.

16. Palmer further discloses an optical node [transceiver A] comprising a plurality of node heads [transmitter 102A and receiver 104a] and a node base [controller 100a], said node base further comprising a processor [CPU 312], a boot memory block, a local memory block, a

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system configuration memory block, and a system memory block [RAM 314 comprises of all the blocks; it is well known in the art to partition a memory into a plurality of blocks].

17. Gods further discloses a node base [201] comprising a processor [CPU], a boot memory block, a local memory block, a system configuration memory block, and a system memory block [NVRAM 206 with file system 208; fig.2; col.6, l.4; 208 comprises of all the blocks and code is required to access blocks]. Gods further discloses the method comprising:

- Retrieving system configuration parameters [col.6, ll.24-38; some configuration parameters in the broadest interpretation is inherently needed in order for the system to setup and operate accordingly] and boot parameters [col.5, ll.56-62; some boot parameters in the broadest interpretation such as the pointers to files are needed for boot initiation element 202 to boot accordingly] from the system configuration memory block.
- Loading the system image onto the system memory block [col.8, ll.27-55].
- Detecting failures during loading of the system image [col.9, ll.11-12].
- Loading an alternate system image onto the system memory block upon failure of the system image load [col.8, l.61 -- col.9, l.8].
- Storing a boot string onto the system memory block such that the system image can learn how it was loaded [col.7, ll.46-57; col.9, ll.55-59].

18. As to claim 14, Gods discloses detecting failures using a predetermined number of load attempts factor [col.8, l.63 -- col.9, l.15].

19. As to claim 15, Gods discloses retrieving the system image from the network server [system manager 203] over a communication link [col.5, ll.36-39; col.6, ll.59-60].

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20. As to claim 16, Gods discloses retrieving the system image from the network server over an auxiliary channel [ATM link] [col.5, ll.50-52, ll.62-64; col.6, ll.55-60].

21. As to claim 17, Gods discloses retrieving the system image from the local memory block [col.8, ll.55-61].

22. In re claim 19, Gods discloses each and every limitation of the claim as discussed above in reference to claim 12. Gods further discloses a boot load loop module [boot initiation element 202] for loading a system image onto a system memory block of an optical node in a communication network, the boot load loop module configured to control a processor [col.5, l.56 -- col.6, l.1] to:

- Retrieve system configuration parameters [col.6, ll.24-38; some configuration parameters in the broadest interpretation is inherently needed in order for the system to setup and operate accordingly] and boot parameters [col.5, ll.56-62; some boot parameters in the broadest interpretation such as the pointers to files are needed for boot initiation element 202 to boot accordingly] from a system configuration memory block.
- Load the system image onto the system memory block [col.8, ll.27-55].
- Detect failures during the system image load [col.9, ll.11-12].
- Load an alternate system image onto the system memory block upon detecting failures during the system image load [col.8, l.61 -- col.9, l.8].
- Store a boot string onto the system memory block such that the system image can learn how it was loaded [col.7, ll.46-57; col.9, ll.55-59].

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23. Claims 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gods and Palmer as applied to claims 1 and 12 above, and further in view of Sun et al., U.S. Patent 6282675, hereinafter Sun.

24. Gods discloses detecting failures when a predetermined number of load attempt is exceeded [col.8, l.63 -- col.9, l.15]. Gods did not discuss detecting failures when a predetermined time interval is exceeded.

25. Sun discloses a method of loading a system image [sequences of instructions] onto a node [col.1, ll.26-31, ll.54-56] comprising detecting failures [faults] when a predetermined time interval is exceeded [col.4, ll.50-51, ll.55-57; col.5, ll.13-22; col.6, ll.8-65].

26. It would have been obvious to one of ordinary skill in the art, having the teachings of Gods and Sun before him at the time the invention was made, to use the elapsed time detection taught by Sun with the failure detection disclosed by Gods as the elapsed time detection taught by Sun is a well known detection suitable for use in the failure detection of Gods. One of ordinary skill in the art would have been motivated to make such a combination as it provides a way to provide fault tolerance in data transmission [Sun: col.1, l.54 -- col.2, l.12].

27. As to claim 13, Gods discloses detecting failures when a predetermined number of load attempt is exceeded [col.8, l.63 -- col.9, l.15]. Gods did not discuss detecting failures when a predetermined time interval is exceeded.

28. Sun discloses a method of loading a system image [sequences of instructions] onto a node [col.1, ll.26-31, ll.54-56] comprising detecting failures [faults] using a predetermined time interval factor [col.4, ll.50-51, ll.55-57; col.5, ll.13-22; col.6, ll.8-65].

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29. It would have been obvious to one of ordinary skill in the art, having the teachings of Gods and Sun before him at the time the invention was made, to use the elapsed time detection taught by Sun with the failure detection disclosed by Gods as the elapsed time detection taught by Sun is a well known detection suitable for use in the failure detection of Gods. One of ordinary skill in the art would have been motivated to make such a combination as it provides a way to provide fault tolerance in data transmission [Sun: col.1, l.54 -- col.2, l.12].

30. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gods and Palmer as applied to claim 1 above, and further in view of Berstis et al., U.S. Patent 6560701, hereinafter Berstis.

31. In re claim 9, Gods and Palmer discloses every limitation of the claim as discussed above in reference to claim 1. Gods further discloses a method of loading a system image onto a node in a network comprising various facilities [fig.1], a plurality of nodes [col.5, ll.36-39], a backbone network [ATM network], and one or more network servers [system manager 203] storing a system image [col.7, ll.7-8; col.9, ll.7-8], said node capable of routing wireless communications data and interconnected by communication links [ATM links] with the plurality of nodes in the network [fig.1; col.5, ll.36-41], the method comprising:

(a) loading a network [software] image from the network server onto a system memory block [inherently, some memory in the broadest interpretation is needed for a computer system to function] as the system image for execution by a processor [col.8, ll.27-46; load from network option].

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(b) loading a main [software] image from a local memory block [NVRAM 206] onto the system memory block as the system image for execution by the processor if loading the network image from the network server is unsuccessful [col.8, l.61 -- col.9, l.8].

32. Gods did not discuss loading a safety image if loading the main image is unsuccessful.

Berstis discloses a method of loading a system image [col.1, ll.7-12], the method comprising:

(c) loading a safety image [alternate boot record 310 and operating system 312] from the local memory block [HD 220] onto the system memory block [206] as the system image for execution by the processor if loading the main image [master boot record 304 and operating system 306] is unsuccessful [col.6, ll.31-36; col.8, ll.5-23].

33. It would have been obvious to one of ordinary skill in the art, having the teachings of Gods and Berstis before him at the time the invention was made, to use the safety image loading step taught by Berstis with the image loading steps disclosed by Gods as the safety image loading step taught by Berstis is a known loading step suitable for use in the image loading steps of Gods. One of ordinary skill in the art would have been motivated to make such a combination as it provides a way to provide self recovery when faults are encountered [Berstis: col.1, ll.35-50].

34. As to claim 10, it would have been obvious to one of ordinary skill in the art to modify the method as defined in claim 9, to further comprise repeating steps (a) through (c) if the loading of the safety image is unsuccessful in order to be truly self-recoverable when a fault is encountered with loading the system image.

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35. As to claim 11, it would have been obvious to one of ordinary skill in the art to modify the method as defined in claim 9, to further comprise repeating steps (a) through (c) in any order in order to be truly self-recoverable when a fault is encountered with loading the system image.

36. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frigo et al., U.S. Patent 5808764, hereinafter Frigo, in view of Gods and Palmer.

37. In re claim 18, Frigo discloses a system [fig.9b; col.10, ll.1-2] capable of routing communication data [col.10, ll.1-2], the system comprising:

- A plurality of node heads [DBR (1) and RCVR (1) forms one head while (2) forms the other] within a communication node [CO 20] wherein the node heads comprises a plurality of transceivers [(1) and (2)] [fig.9b; col.10, ll.1-7].
- A node base [WGR 30] coupled to said plurality of node heads [fig.9b; col.10, ll.5-7].
- Frigo did not discuss the details of the node base or system operations.

38. Gods discloses a system for loading a system image onto a node [201] capable of routing communications data [col.5, ll.17-19, ll.36-41; booting involves loading system image], the system comprising:

- A node base [201] comprising a processor [CPU] coupled [it is well known in the art to couple a processor to a memory] to a boot memory block [boot initiation element may be stored in NVRAM 206], a local memory block [hard drive; col.6, l.51 -- col.7, l.3], a system configuration memory block [NVRAM 206 with file system 208; fig.2; col.6, l.4; code is required to access the files that contains configuration information on how to access the system], and a system memory block [col.6, l.51 -- col.7, l.3; some memory such as RAM is inherently available for system image to load and boot accordingly].

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- A plurality of communication links [ATM links] connecting the communication node to a communication mesh network [ATM network] comprising a plurality of communication nodes [fig.1; col.5, ll.36-41].
- One or more network servers [system manager 203].
- An auxiliary channel [ATM link] coupled to the processor to provide an auxiliary communication channel [col.5, ll.50-52, ll.62-64; col.6, ll.55-60].
- Wherein the processor is configured to retrieve the system image from a plurality of locations [remote and local] including the local memory block and the network server and to load the system image onto the system memory block [col.8, l.27 -- col.9, l.4].

39. It would have been obvious to one of ordinary skill in the art, having the teachings of Gods and Frigo before him at the time the invention was made, to modify the system taught by Gods to include the node base and associated system image loading operation as taught by Frigo, in order to obtain the system capable of loading an alternate system image. One of ordinary skill in the art would have been motivated to make such a combination as it provides a way to boot from an alternative source and be fault tolerant [Gods: col.1, ll.35-55].

40. Furthermore, neither Frigo nor Gods disclose the routing of wireless communication data. Frigo discloses the cost concern of using a non-wireless fiber network [col.2, ll.32-44]. Palmer discloses an optical node [transceiver A] capable of routing wireless communications data [col.2, ll.36-67; free space atmospheric laser].

41. It would have been obvious to one of ordinary skill in the art, having the teachings of Frigo and Palmer before him at the time the invention was made, to use the wireless optical node taught by Palmer for the communication node disclosed by Frigo as the wireless optical node

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taught by Palmer is a known device suitable for use as the communication node of Frigo. One of ordinary skill in the art would have been motivated to make such a combination as it provides a way to not be concerned with the cost of implementing the network with fiber [Frigo: col.2, ll.32-44].

42. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gods in view of Sun.

43. In re claim 20, Gods discloses a method of detecting system image load attempt failure [col.8, l.63 -- col.9, l.15], the method comprising:

- Tracking total number of load attempts [col.9, ll.11-15].
- Flagging the system image as bad image if the system image fails to load within a predetermined total number of load attempts [col.8, l.63 -- col.9, l.15].

44. Gods did not discuss the tracking elapsed time between load attempts.

45. Sun discloses a method of detecting system image [sequences of instructions] load attempt failure [faults], the method comprising:

- Tracking elapsed time between load attempts [col.4, ll.50-51, ll.55-57; col.5, ll.13-22; col.6, ll.8-65].

46. It would have been obvious to one of ordinary skill in the art, having the teachings of Gods and Sun before him at the time the invention was made, to use the elapsed time detection taught by Sun with the failure detection disclosed by Gods as the elapsed time detection taught by Sun is a well known detection suitable for use in the failure detection of Gods. One of ordinary skill in the art would have been motivated to make such a combination as it provides a way to provide fault tolerance in data transmission [Sun: col.1, l.54 -- col.2, l.12].

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47. As to claim 21, Gods discloses retrieving a new image to load as the system image when the system image previously attempted to load is flagged as bad image [col.5, ll.36-39; col.6, ll.59-60].

Conclusion

48. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Holmes, U.S. Patent 6335782, discloses an optical communication node.
- b. Morgan, U.S. Patent 6515789, discloses an optical communication network.
- c. Speed et al., U.S. Patent 5535411, discloses an alternate booting system.
- d. Arnold et al., U.S. Patent 5214695, discloses loading a system image from a memory block.
- e. Watson et al., U.S. Patent 5475839, discloses booting from a safety image.
- f. Yen, U.S. Patent 6381694, discloses booting from an alternate system.
- g. Blam et al., U.S. Patent 6738923, discloses repeating load attempts.
- h. Ramaswami et al., U.S. Patent 5781537, discloses routing communication data.
- i. Shiau et al., U.S. Patent 6119226, discloses various memory blocks.
- j. Freund, U.S. Patent 5095421, discloses timing a load attempt.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tse Chen whose telephone number is (703) 305-8580. The examiner can normally be reached on Monday - Friday 9AM - 5PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Browne can be reached on (703) 308-1159. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tse Chen
July 15, 2004



**REHANA PERVEEN
PRIMARY EXAMINER**